

Abstract

An optical signal processor and method use a signal router having a plurality of optical switches arranged in a connection structure with each switch having an optical input port, optical output ports, and a control port for controlling the optical connection between the input ports and the output ports. A control generator has a plurality of electrically controlled optical energy sources, each source being optically connected to at least one of the control ports. Each source has an electrical signal input control and an optical energy output control which responds to the electrical control signal. A processor translation system can flexibly generate and control the electrical signals input to the plural control ports for configuring the connection structure thereby managing the optical route of the optical input signal through the processing system to a selected output port. The optical processing method optically switches optical signals using flexible optical switching circuitry. In the various systems, an all optical path is provided from the optical input to optical output.